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# **APPARATUS AND METHOD FOR DISPLAYING BACKGROUND IMAGES (THEMES) FOR COMPUTER AND HANDHELD COMPUTER DEVICES**

## **Cross Reference to Related Applications**

A provisional patent describing this invention was applied for on 2/26/2003 (60/450419).

## **Statement Regarding Federally Sponsored Research or Development**

No part of this invention was the result of any federally sponsored research and development.

## **Technical Field**

This invention relates to how background images are displayed for computer and handheld computer devices.

## **Background of the Invention**

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Within the prior art, it is well known how to display a background image on a computer monitor or handheld screen. Within the industry, these images are commonly known as 'Themes'. Within this document, the following terms shall be used:

- **Theme:** 'theme' shall mean the background image that is displayed on a computer monitor or the built-in display of handheld computer.
- **GSM:** Acronym for **Global System for Mobile Communications**, which is a 2G (second generation) standard for digital cellular communications. It is based on narrowband TDMA (Time Division Multiple Access), which allows eight simultaneous calls on the same radio frequency. GSM was first introduced in 1991 in Europe, but nowadays it is used worldwide and is one of the main 2G digital wireless standards. Most GSM networks operate in 900 MHz or 1800 MHz frequency bands with the exception

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of some networks in parts of the Americas, including the USA and Canada, that operate in 850 MHz and 1900 MHz. A key feature of GSM is the Subscriber Identity Module (SIM), commonly known as a SIM card. It contains the user's account information and phonebook, thus allowing the user to retain his information after switching handsets. SIM cards can be programmed to display custom menus for personalized services.

- **GPRS:** Short for **General Packet Radio Service**, a standard for wireless communications which runs at speeds up to 115 kilobits per second, compared with current GSM (Global System for Mobile Communications) systems. 9.6 kilobits. GPRS supports a wide range of bandwidths, is an efficient use of limited bandwidth and is particularly suited for sending and receiving small bursts of data, such as e-mail and Web browsing, as well as large volumes of data.

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- **CDPD: Cellular Digital Packet Data.** A digital, wireless data network that is an enhancement to an existing analog cellular network. Based on IBM's CelluPlan II, CDPD provides a packet overlay onto the advanced mobile phone service network and moves data at 19.2 Kbps (kilo bits per second) over ever-changing unused intervals in the voice channels. If all the channels are used, the data are stored and forwarded when a channel becomes available. CDPD is used for applications including police data networks, public safety, point of sale, mobile positioning and other business services. CDPD works under the analog cellular system.
- **LAN: (Local Area Network)** A communications network that serves users within a confined geographical area. The "clients" are the user's workstations typically running Windows, although Mac and Linux clients are also used.

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The "servers" hold programs and data that are shared by the clients.

- **WAN: (Wide Area Network)** A computer network that covers a broad area (i.e., any network whose communications links cross metropolitan, regional, or national boundaries). The largest and most well-known example of a WAN is the Internet.
- **Handheld Computer:** The term 'handheld computer' shall mean any of the following:
  - A self-contained portable computer, which has a means of communicating with a data network. A common name for these devices is PDA. Palm Pilots and Pocket PCs fall into this category as well as a plurality of other handheld devices constantly entering the market.
  - A self contained portable computer which has a means of communicating with a data network and also has the capability of making voice calls on a voice network (not

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necessarily at the same time). These devices are a hybrid of a cell phone and a PDA.

- A cell phone which has the capability of connecting to data and/or voice networks (not necessarily at the same time) and also has a display and the capability of displaying images on the cell phone's screen. If the cell phone performs voice calls via Voice Over IP then connectivity to voice networks is not necessary since voice calls can be placed over the data network using Voice Over IP technology.

The current art allows the user to specify what 'theme' will be displayed on his/her screen. There are also well known ways for the user to specify a list of 'themes' which the computer theme selecting algorithm may cycle through. However, the user may desire a 'theme' which matches a set of criteria that the user may be interested in. For example, the user may want a theme to match

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the current weather in a particular city. He or she may want the theme to match how a stock is performing. In the past, handheld computers were not able to get real time information because they did not have a dynamic connection to the Internet/WAN (Wide Area Network) or to a server which has the information which they could use to determine an appropriate 'theme'. Recent advances in the technology now make it possible for handheld computers to get real time information even if they are not physically connected to the owner's main computer (commonly known as being sync'd).

However, with the recent advances in handheld technology, all the 'theme selection' algorithms still use a static list of themes and do not take advantage of networking technology which is now available in today's handhelds.

### **Summary of the Invention**

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The aforementioned problems are solved and a technical advance is achieved in the art by an apparatus and method that uses a computer program which goes out to the Internet to get information which can then be used to determine which theme is used.

### **Brief Description of the Drawing**

FIG. 1 illustrates, in block diagram form, an embodiment of the invention.

FIG. 2 illustrates, in block diagram form, another embodiment of the invention.

FIG. 3 illustrates, in block diagram form, another embodiment of the invention.

FIG. 4 illustrates, in block diagram form, another embodiment of the invention.



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FIG. 5 illustrates, in block diagram form, another embodiment of the invention.

FIG. 6 illustrates, in flowchart form, how the theme switching algorithm could work. The figure uses current weather as an example. However, any real time information could be used.

### **Detailed Description**

FIG. 1 illustrates an embodiment for implementing the invention. Handheld computer 101 has connectivity to the Internet (WAN (Wide Area Network)) 111 via any available wireless protocol (e.g., 802.11, GSM, GPRS, CDPD). The handheld computer connects to server 102 (e.g., web server) in order to get real time information. Once the information has been collected, a computer program operating in the handheld can analyze the data and select an appropriate 'theme' to display to the user

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FIG. 2 illustrates another embodiment for implementing the invention. Handheld computer 101 has connectivity to the Internet through host computer 103 which in turn has access to the Internet (WAN) 111. The manner (Dial-up connection, T1, DSL, Cable Modem) in which the host computer has access to the Internet is irrelevant. The handheld computer connects to server 102 (e.g., web server) in order to get real time information. Once the information has been collected, a computer program operating in the handheld can analyze the data and select an appropriate 'theme' to display to the user. The computer program running in the handheld may also go to a server and download an appropriate 'theme'.

FIG. 3 illustrates another embodiment for implementing the invention. Handheld computer 101 has connectivity to the Internet through cell phone 104. The handheld computer connects to server 102 (e.g., web server) in order to get real

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time information. Once the information has been collected, a computer program operating in the handheld can analyze the data and select an appropriate 'theme' to display to the user. The computer program running in the handheld may also go to a server and download an appropriate 'theme'.

FIG. 4 illustrates another embodiment for implementing the invention. Handheld computer 101 has connectivity to the Internet through cell phone 104. The handheld computer connects to server 102 (e.g., web server) in order to get real time information. Once the information has been collected, a computer program operating in the handheld can analyze the data and select an appropriate 'theme' to display to the user. The handheld computer can then contact another server 103 to request a particular theme. This server (103) may then return the actual theme or an indication of what the theme should be. The server (103) may calculate the theme when the

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handheld requests it, or may have calculated it ahead of time in anticipation of the handheld request. Actually, servers 102 and 103 could be the same server.

FIG. 5 illustrates another embodiment for implementing the invention. Handheld computer 101 has connectivity to the Internet (WAN (Wide Area Network)) 111 via any available wireless protocol (e.g., 802.11, GSM, GPRS, CDPD). The handheld computer connects to server 102 (e.g., web server) and requests the server to select an appropriate theme. The handheld computer can then contact another server 103 to request a particular theme. This server (103) may then return the actual theme or an indication of what the theme should be. The server (103) may calculate the theme when the handheld requests it, or may have calculated it ahead of time in anticipation of the handheld request. Actually, servers 102 and 103 could be the same server.

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Fig. 6 illustrates how the theme selection algorithm could work. Execution starts at Point A.

The application determines if the handheld device is currently connected to the network. If not, then steps must be taken to connect the device to the network. This could be done either programmatically or by instructing the user to connect the device to the network. Once connected the application contacts the server. In this example this could be a weather server to get weather for a particular area. The weather server returns the current information and the application then analyzes it. Once the application has analyzed the data it determines what an appropriate theme is. For example, if the current weather was (20 degrees (Fahrenheit)) and snowing then the application might select a theme with snow in it. Once the theme has been selected, the application displays that theme. The manner in which the theme is displayed is not

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discussed because it is a well known procedure for those skilled in the art. The application can then determine if it is necessary to disconnect from the network. If it decides to disconnect then the network connection will be torn down. If not, then the connection would be left up. The application then would either exit or suspend itself until it is appropriate to check the real-time weather information again. The exact sequence of when the application disconnects from the network is not important, as long as it does it after the information is received from the server.

While the invention has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.